Tech Transfer Tips

The following is part of a series of informative briefs relating to technology transfer provided by the Technology Transfer (TT) Division.

Cooperative research and development agreements

What is a CRADA?

A cooperative research and development agreement (CRADA) is an agreement by which Laboratory staff work with partners from industry, academia and/or nonprofit organizations to achieve advanced research and development activities and possible commercialization of intellectual property by the CRADA participant. A CRADA can be an excellent tool to help the Laboratory meet its programmatic goals and mission. A CRADA also is an excellent mechanism to help Laboratory partners achieve technology developments that might otherwise be impossible to achieve if restricted to the commercial world. U.S. economic competitiveness is enhanced greatly by interactions between the national laboratories and private industry.

Why get involved in CRADA activity?

- Many federal sponsors, such as the Department of Energy's Energy Efficiency and Renewable Energy and Fossil Energy, require that a certain percentage of their funds be used in collaborative research.
- Programmatic funds can be extended as a result of the cost-shared relationship between the Lab and the participant; a collaborative partner also may elect to fully fund an activity.
- Engaging in technical collaborations with peers from industry or academia enhances intellectual stimulation.
- Collaborations with industry can provide real world validation of scientific tests and hypotheses.
- The Laboratory retains a nonexclusive, royalty-free, irrevocable government use license to every subject invention produced under a CRADA.

Currently working under a CRADA?

Don't forget the following:

- Understand one's obligations under the CRADA; it is a legally binding contract.
- Regular communication with the partner is essential for all successful collaborations.
- Keep a separate, bound notebook for each CRADA — this allows the Laboratory to demonstrate achievements in deliverables under the agreement. It also documents clearly the development of intellectual property.
- Think carefully before publishing or otherwise disclosing CRADA information.
- A CRADA may contain proprietary information that must not be disclosed. Patent rights risk being forfeited through premature disclosure.
- Perform only those tasks included in the Statement of Work.
- Allocate only funds from the specified program code for the CRADA work.

Keys to successful CRADA implementation:

- Plan ahead — although it can be extremely rewarding in the long term, the CRADA negotiation will add time to the start of a project.
- Communicate early with Laboratory and industry technology-transfer staff responsible for coordinating overall activity.
- Establish agreement among all parties on funding levels and sources before starting the CRADA process.
- Keep in mind that negotiations deal with several important factors including (ownership and intellectual property; product liability and indemnification and hold-harmless clauses; and U.S. manufacture and competitiveness.
- Researchers who anticipate subcontracting any CRADA tasks or using any non-University of California employees to perform such tasks, must contact a TT CRADA specialist before proceeding.

For more information, see the TT Web site at *www.lanl.gov/partnerships online* or contact Patty Duran of TT Division at 7-2499.

The Science Council

by Tom Bowles, chief science officer

It has been six months since the Science Council was formed and this is a good time to discuss what we have been doing. The Council consists of seven members — Dave Clark, Nuclear Materials Technology (NMT) Division; Chuck Farrar, Engineering Sciences and Applications (ESA) Division; Jackie Kiplinger, Chemistry (C) Division; Bill Junor, International, Space and Response (ISR) Division; Tom Terwilliger, Bioscience (B) Division; Steve White, Applied Physics (X) Division; Ken Wohletz, Earth and Environmental Sciences (EES) Division; plus myself and the deputy chief science officer, Dave Sharp. There also are ex-officio members that are being finalized (those positions will be discussed in a future column).

The council has focused on two major activities — the Laboratory directed research and development process and documenting how science supports the Laboratory's mission. We received a great deal of input on LDRD and worked with David Watkins of the Laboratory-Directed Research and Development (STB-LDRD) Office to address issues. We believe that the new process is clearer and more transparent. Laboratory management has well-defined means to provide input at the start of the process. We will use the feedback we get on this year's process to fine tune it for next year.

A significant amount of effort also was invested in documenting the case for how science benefits the Laboratory missions. This is important — as resources become more constrained, we need to make the case as effectively as possible for supporting science at the Laboratory. This effort already is being used to address issues raised by Congress on the LDRD program, as well as to provide information on the importance of the Office of Science to Los Alamos missions. And we have been working to make the case with the National Nuclear Security Administration (NNSA) on the importance of longer-term research and development in support of the weapons and threat reduction programs.

A critically important part of the Science Council's responsibility is to provide direct input from the staff on issues that impact science. You will soon be seeing various members of the Council at group meetings to let you know what we are doing and to get your input on the most important issues that need to be resolved at the Laboratory. The Council members will then work (in priority order) these issues and report back what has been done.

Quantum darwinism …

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ceases to respect the quantum principle of superposition, which is the key to its "quantumness."

Theory of decoherence — developed by Zurek and others over the past quarter century — is now especially relevant in quantum engineering. For instance, to build a quantum computer one must make sure to limit the impact of the environment to eliminate decoherence.

But quantum Darwinism shows that decoherence is not the whole story. Zurek explains, "Recently, we realized that there was an extra twist — we never directly bump into a system to measure its state. We actually use the environment that has already bumped into the system to find out about it."

For instance, now, when you are looking at this article, you are not interacting with this page directly. Rather, your eyes are intercepting photons that have already interacted with the text. According to Zurek, this is how you observe — how you get information.

"In quantum Darwinism the environment becomes the middle man, the communication channel through which the information is propagated from the systems to the observer," he said.

Another piece of the puzzle that eventually led to the culmination of what is now known as quantum Darwinism is the fact that one never observes the entirety of the environment. Instead, individuals observe merely a fraction of the environment (e.g, the tiny fraction of all photons that have interacted with this page fall into our eyes),

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Snakes …

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performed, the procedure may end up providing more avenues through which the venom can travel.

If an individual is bitten while walking and is a long distance from a hospital, but someone is with him or her, that person should go for help.

The only accepted treatment for a snake bite is antivenin, which should be administered by trained hospital staff only. The staff should contact the National Poison Control Center for additional assistance.

For more information about snakes native to this area, sign up for the Laboratory's "New Mexico Snake Awareness" course (No. 13960) at *http://lanl.gov/training/* online.